

Claims

1. An apparatus for the thermal treatment of granular solids for performing endothermic reactions, wherein CO<sub>2</sub> and/or water is split off from the solids, comprising a reactor to which fuel, O<sub>2</sub>-containing gas and preheated solids are supplied, wherein the fuel is burnt in the reactor to produce combustion gas with temperatures in the range from 600 to 1500°C, the solids in the reactor are brought in fluidizing contact with the combustion gases, hot exhaust gas from the reactor is used for preheating the solids, solids are withdrawn from the reactor with temperatures in the range from 400 to 1200°C and the O<sub>2</sub>-containing gas is preheated by means of the hot solids, characterized in that the reactor constitutes an approximately cylindrical, lying cyclone with an approximately horizontal axis of symmetry and swirling, where in an inlet area of the reactor fuel, solids and gas are introduced into the reactor, and from an outlet area of the reactor disposed opposite the inlet area with a horizontal distance solids and hot exhaust gas are withdrawn.
2. The apparatus as claimed in claim 1, characterized in that at least one preheating cyclone is disposed before the reactor.
3. The apparatus as claimed in claim 1 or 2, characterized in that at least one cooling means is disposed subsequent to the reactor, in which cooling means solids withdrawn from the reactor are cooled in direct contact with O<sub>2</sub>-containing gas.
4. The apparatus as claimed in claim 1 or any of the preceding claims, characterized in that the reactor has a discharge line for withdrawing hot exhaust gas, which discharge line protrudes into the interior of the reactor by

a length  $T$  of 0.03 to 0.2 times the entire horizontal length  $L$  of the reactor.

5. The apparatus as claimed in claim 1 or any of the preceding claims, characterized in that the solids inlet opening of the reactor is disposed at the periphery of the reactor opposite the solids outlet.